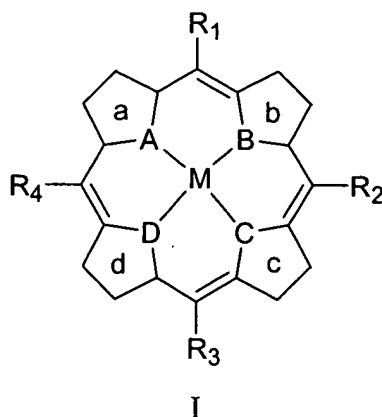


Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A compound of formula I, or a pharmaceutically acceptable salt thereof,



wherein

one or two of A, B, C and D are each independently selected from S, O, Se and Te, and the remainder are N;

a, b, c and d are each independently substituted or unsubstituted 5-membered heterocyclic groups having the members necessary to complete a porphyrin, chlorin, bacteriochlorin or isobacteriochlorin nucleus in which one or two of the nitrogens are replaced by S, O, Se or Te;

M is H or a metal;

R₁, R₂, R₃ and R₄ are each independently selected from:

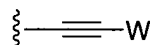
H;

alkyl;

cycloalkyl;

halogen;

aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH₂, NO₂, CONH₂, COOH, COO-alkyl, -OZ, -COOZ, a polyethylene glycol group, an alkyl sulfonate group, an alkyl-COOH group, a substituted or unsubstituted benzyl group, a sugar derivative, -C≡C-(CH₂)_pCO₂R₁₀, where R₁₀ is H or alkyl, and O(CH₂)_rCOR₁₁, where R₁₁ is OH, O-alkyl or N-succinimide, and p and r are each independently an integer from 1 to 10;



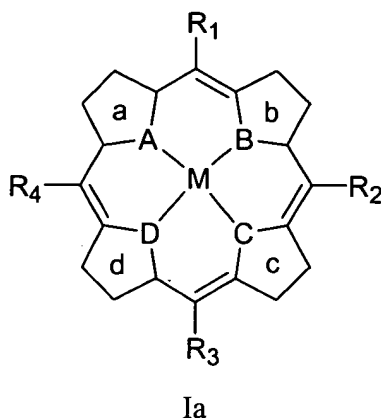
wherein W is an aryl, alkyl or heteroaryl group, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH₂, NO₂, CONH₂, haloalkyl, COOH, COO-alkyl, -OZ', -COOZ', a polyethylene glycol group, an alkyl sulfonate group, an alkyl-COOH group, a substituted or unsubstituted benzyl group, a sugar derivative, -C≡C-(CH₂)_pCO₂R₁₂, where R₁₂ is H or alkyl, and O(CH₂)_rCOR₁₃, where R₁₃ is OH, O-alkyl or N-succinimide, and p' and r' are each independently an integer from 1 to 10;

where Z and Z' are each independently silicon-containing protecting groups;

and wherein when a, b, c and d have the members necessary to complete a porphyrin nucleus in which one or two of the nitrogens are replaced by S, O, Se or Te,

- (a) R₁, R₂ and R₃ are identical, and R₄ ≠ R₁, R₂, R₃; or
- (b) R₁ = R₃; R₂ = R₄, where R₁, R₃ ≠ R₂, R₄; or
- (a) R₂ = R₃; R₁ ≠ R₄; and R₁, R₄ ≠ R₂, R₃.

2. (Original) A compound of formula Ia



wherein

one or two of A, B, C and D are each independently selected from S, O, Se and Te, and the remainder are N;

a, b, c and d are each independently substituted or unsubstituted 5-membered heterocyclic groups having the members necessary to complete a chlorin, bacteriochlorin or isobacteriochlorin nucleus in which one or two of the nitrogens are replaced by S, O, Se or Te;

M is H or a metal;

R₁, R₂, R₃ and R₄ are each independently selected from:

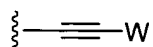
H;

alkyl;

cycloalkyl;

halogen;

aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH₂, NO₂, CONH₂, haloalkyl, COOH, COO-alkyl, -OZ, -COOZ, a polyethylene glycol group, an alkyl sulfonate group, an alkyl-COOH group, a substituted or unsubstituted benzyl group, a sugar derivative, -C≡C-(CH₂)_pCO₂R₁₀, where R₁₀ is H or alkyl, and O(CH₂)_rCOR₁₁, where R₁₁ is OH, O-alkyl or N-succinimide, and p and r are each independently an integer from 1 to 10;



wherein W is an aryl, alkyl or heteroaryl group, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH₂, NO₂, CONH₂, haloalkyl, COOH, COO-alkyl, OZ', COOZ', a polyethylene glycol group, an alkyl sulfonate group, an alkyl-COOH group, a substituted or unsubstituted benzyl group, a sugar derivative, -C≡C-(CH₂)_pCO₂R₁₂, where R₁₂ is H or alkyl, and O(CH₂)_rCOR₁₃, where R₁₃ is OH, O-alkyl or N-succinimide, and p' and r' are each independently an integer from 1 to 10;

where Z and Z' are each independently silicon-containing protecting groups.

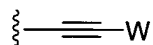
3. (Currently Amended) A compound according to claim 1 ~~or claim 2~~ wherein one of A, B, C and D is S and the remainder are all N.

4. (Currently Amended) A compound according to ~~any preceding~~ claim 1 wherein R₁, R₂, R₃ and R₄ are each independently selected from:

H;

halogen;

phenyl or pyridyl, each of which are optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl, halogen, NH₂, NO₂, CONH₂, haloalkyl, COOH, COO-alkyl, OZ, COOZ, a polyethylene glycol group, -C≡C-(CH₂)_pCO₂R₁₀, where R₁₀ is H or alkyl, and O(CH₂)_rCOR₁₁, where R₁₁ is OH, O-alkyl or N-succinimide, and p and r are each independently an integer from 1 to 10;



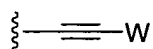
wherein W is a phenyl or pyridyl group, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl, halogen, NH₂, NO₂, CONH₂, haloalkyl, COOH, COO-alkyl, OZ', COOZ', a polyethylene glycol group, -C≡C-(CH₂)_pCO₂R₁₂, where R₁₂ is H or alkyl, and O(CH₂)_rCOR₁₃, where R₁₃ is OH, O-alkyl or N-succinimide, and p' and r' are each independently an integer from 1 to 10.

5. (Currently Amended) A compound according to ~~any preceding~~ claim 1 wherein R_1 , R_2 , R_3 and R_4 are each independently selected from:

H;

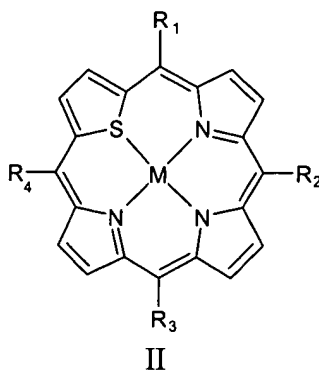
halogen;

phenyl or pyridyl, each of which are optionally substituted by one or more substituents selected from alkoxy, halogen, OH, $O(CH_2)_rCOR_{11}$ and $-C\equiv C-(CH_2)_pCO_2R_{10}$;



wherein W is phenyl or pyridyl, each of which may be optionally substituted by one or more substituents selected from OH, OZ' and a polyethylene glycol group.

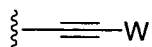
6. (Currently Amended) A compound according to ~~any one of claims 1, 3, 4 or 5~~ claim 1 which is of formula II

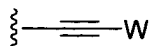


7. (Original) A compound according to claim 6 wherein

R_1 and R_4 are different and are selected from aryl and heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF_3 , alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH_2 , NO_2 , $CONH_2$, haloalkyl, $COOH$, COO -alkyl, OZ and $COOZ$; and

R_2 and R_3 are the same and are both H, halogen or

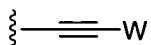




8. (Original) A compound according to claim 7 wherein

R₁ is aryl optionally substituted by an alkoxy group;

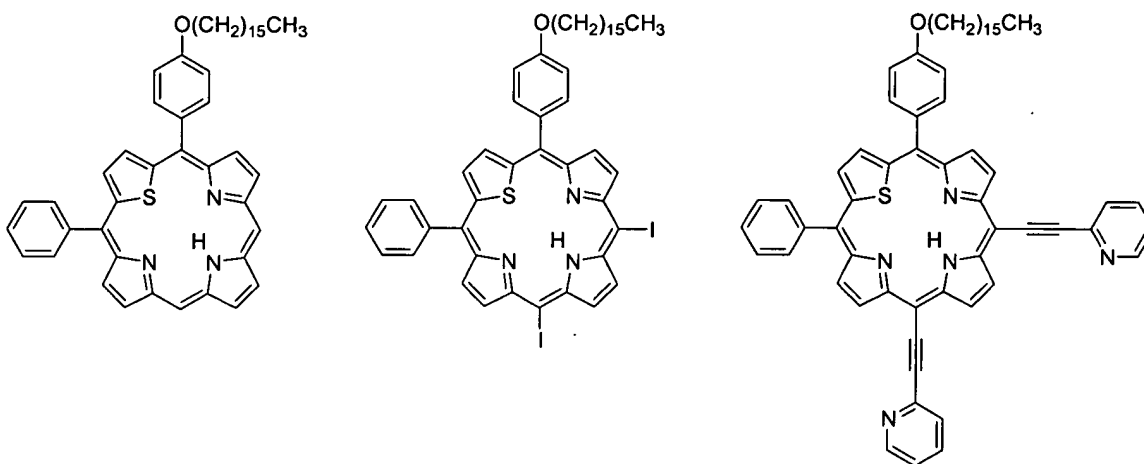
R₂ and R₃ are both H, halogen or



where W is a pyridyl;

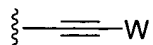
R₄ is phenyl.

9. (Original) A compound according to claim 8 which is selected from the following:



10. (Original) A compound according to claim 6 wherein

R₁ are R₃ are the same and are both H, halogen or

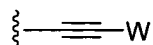


R₂ and R₄ are the same and are both aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl,

halogen, an isothiocyanate group, a haloacetamide, maleimide, NH_2 , NO_2 , CONH_2 , haloalkyl, COOH , COO-alkyl , OZ and COOZ .

11. (Original) A compound according to claim 10 wherein

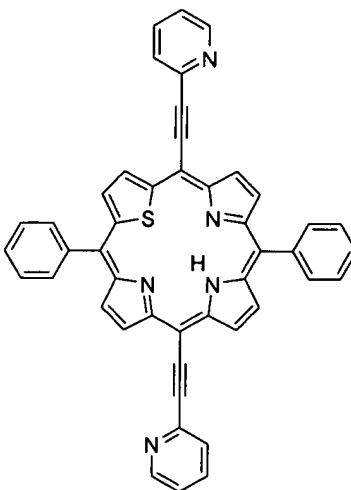
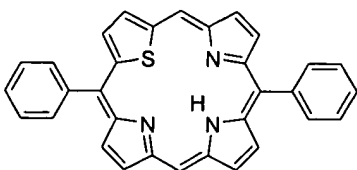
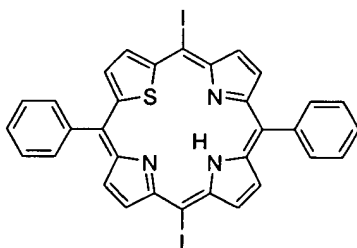
R_1 and R_3 are both H, halogen or



where W is pyridyl;

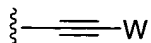
R_2 and R_4 are both phenyl.

12. (Original) A compound according to claim 11 which is selected from the following:



13. (Original) A compound according to claim 6 wherein

R_1 , R_2 and R_3 are the same and are all H, halogen or

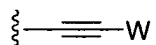


R_4 is aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF_3 , alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH_2 , NO_2 , CONH_2 , haloalkyl, COOH , COO-alkyl , OZ ,

COOZ, $-C\equiv C-(CH_2)_pCO_2R_{10}$, where R_{10} is H or alkyl, and $O(CH_2)_rCOR_{11}$, where R_{11} is OH, O-alkyl or -N-succinimide, and p and r are each independently an integer from 1 to 10.

14. (Original) A compound according to claim 13 wherein

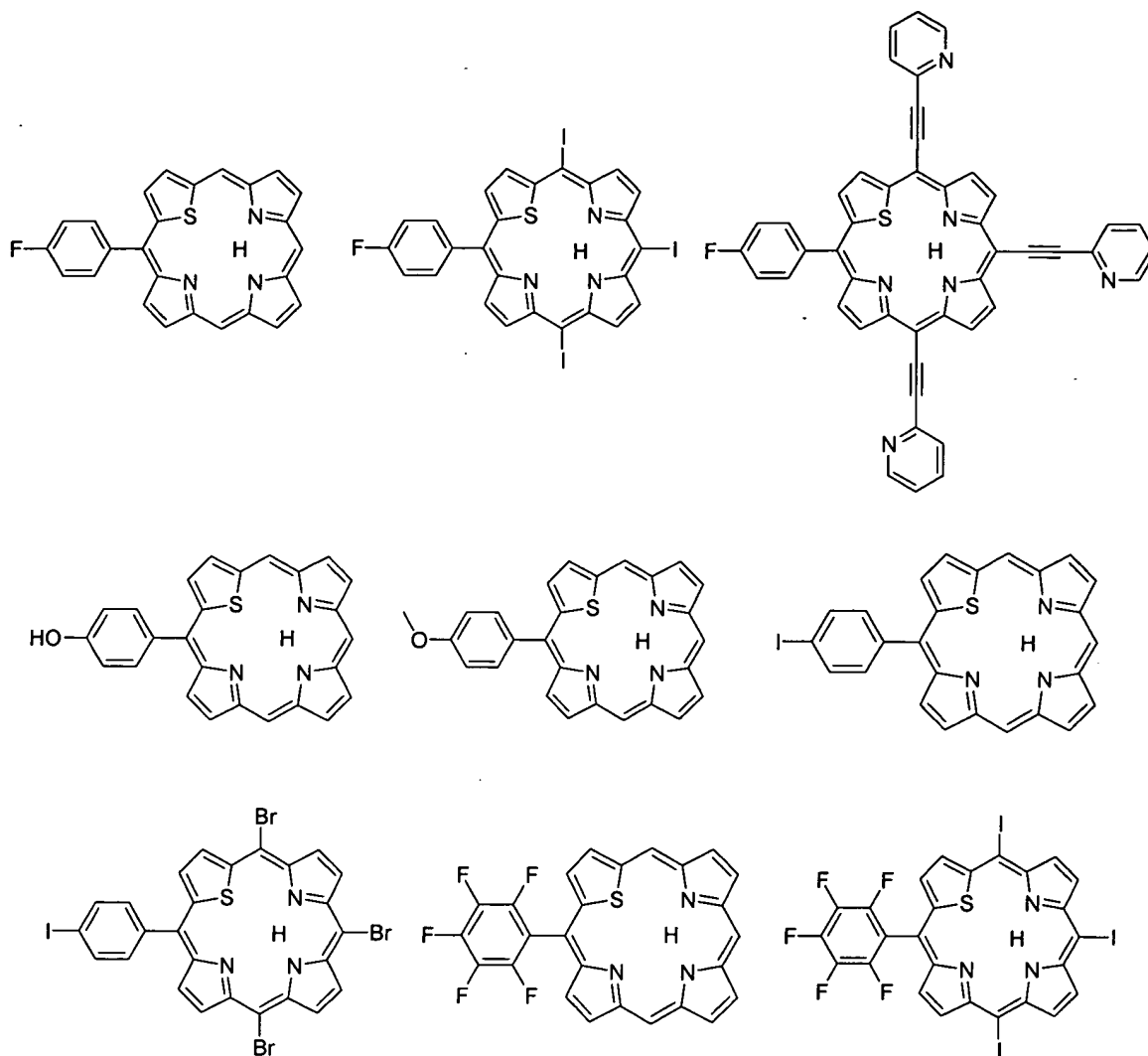
R_1 , R_2 and R_3 are all H, halogen or

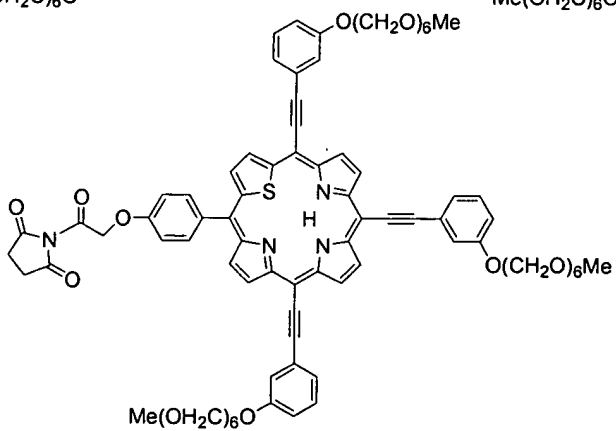
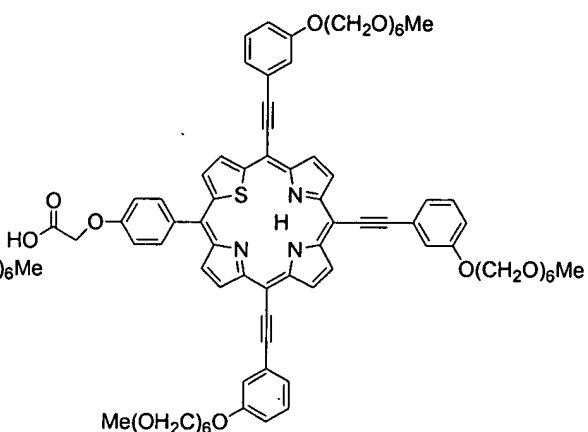
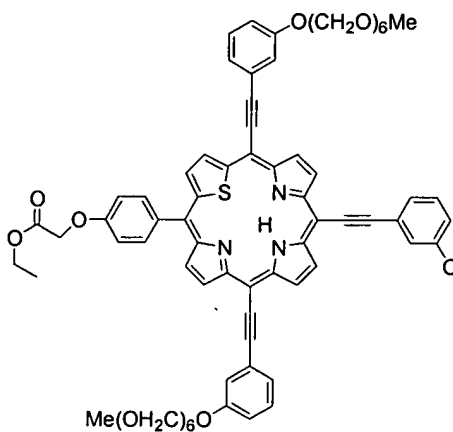
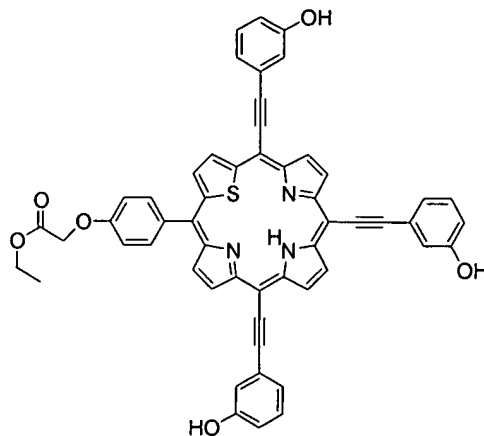
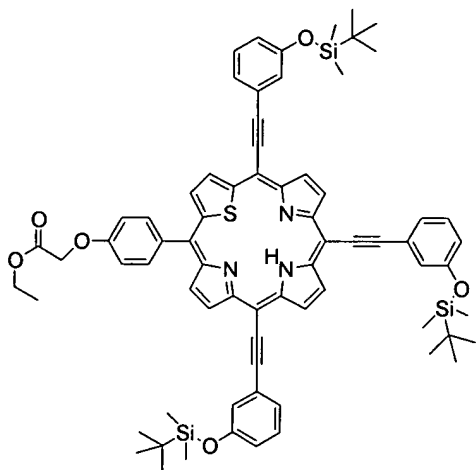
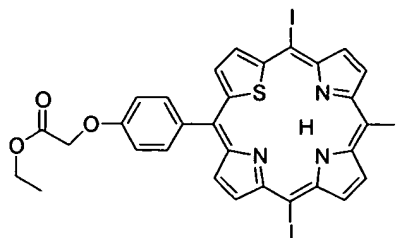
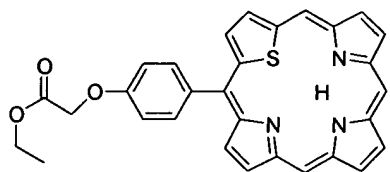


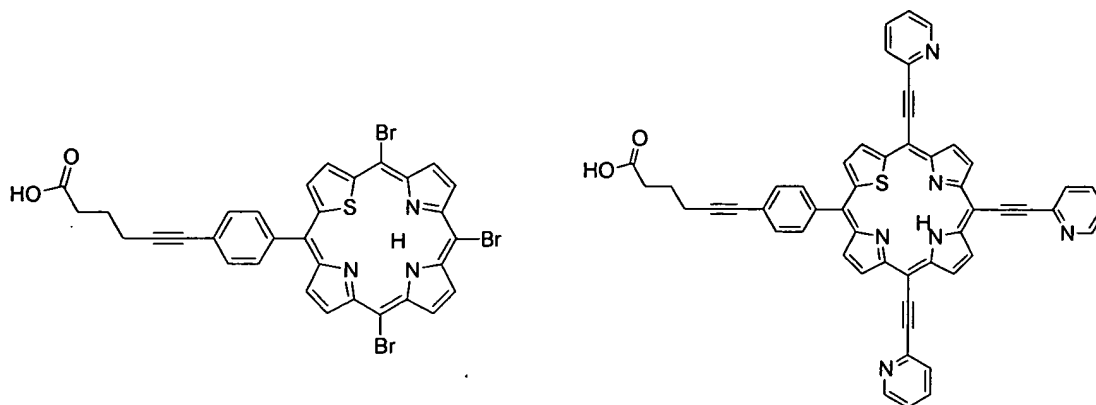
where W is a pyridyl or phenyl group, each of which may be optionally substituted by one or more substituents selected from OH, OZ', and a polyethylene glycol group; and

R_4 is a phenyl group substituted by one or more halogen, alkoxy, $O(CH_2)_pCOR_{11}$ or $-C\equiv C-(CH_2)_pCO_2R_{10}$ groups.

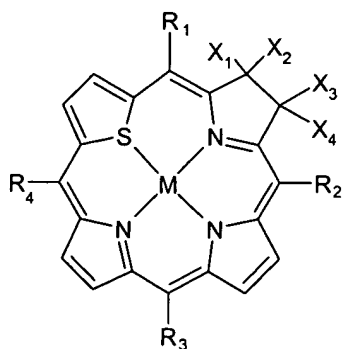
15. (Original) A compound according to claim 14 wherein said compound is selected from the following:



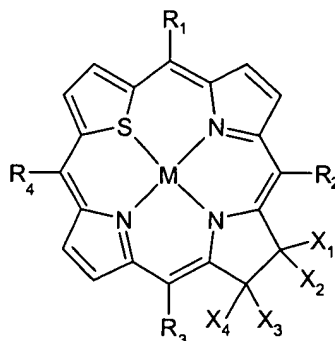




16. (Currently Amended) A compound according to ~~any one of claims 1 to 5~~ claim 1 which is of formula III or IV



III

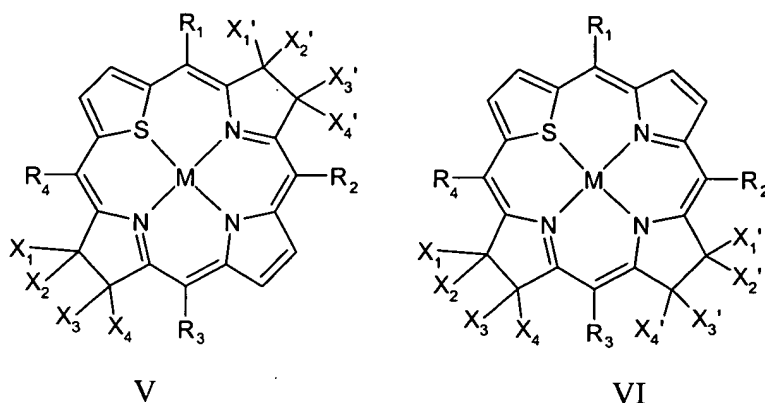


IV

wherein X_1 - X_4 are each independently selected from H, OH, alkyl, alkoxy; or C=O, where X_2 and X_4 respectively are absent, and R_1 - R_4 and M are as defined in claim 1.

17. (Original) A compound according to claim 16 wherein X_1 and X_3 are OH, and X_2 and X_4 are H.

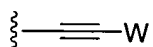
18. (Currently Amended) A compound according to ~~any one of claims 1 to 5~~ claim 1 which is of formula V or VI



wherein R_1 - R_4 and M are as defined in claim 1, and X_1 - X_4 and X_1' - X_4' are each independently selected from H, OH, alkyl, alkoxy, or C=O, where X_2 , X_4 , X_2' and X_4' respectively are absent.

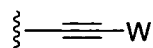
19. (Original) A compound according to claim 18 wherein X_1 , X_3 , X_1' and X_3' are OH, and X_2 , X_4 , X_2' and X_4' are all H.

20. (Currently Amended) A compound according to claim 16 ~~or claim 18~~ wherein R_1 , R_2 and R_3 are the same and are all H, halogen or



R_4 is aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF_3 , alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH_2 , NO_2 , CONH_2 , haloalkyl, COOH, COO-alkyl, OZ and COOZ.

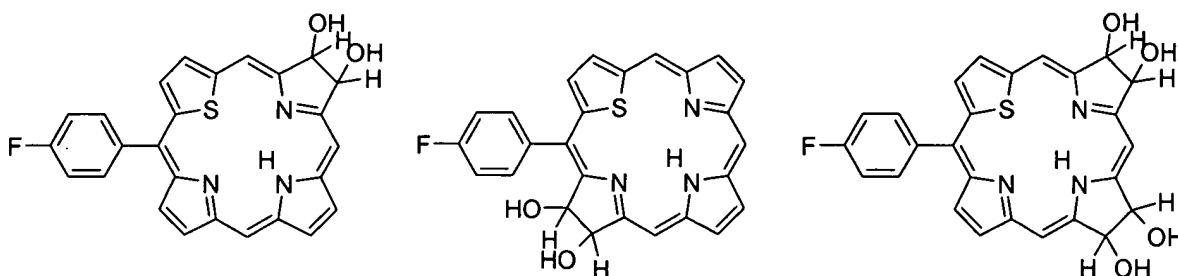
21. (Original) A compound according to claim 20 wherein R_1 , R_2 and R_3 are all H, halogen or



where W is pyridyl; and

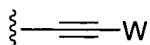
R₄ is a halogen substituted aryl group.

22. (Original) A compound according to claim 21 which is selected from:



23. (Currently Amended) A compound according to claim 16 ~~or claim 18~~ wherein

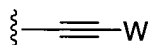
R₂ and R₃ are the same and are both H, halogen or



R₁ and R₄ are different and are aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF₃, alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH₂, NO₂, CONH₂, haloalkyl, COOH, COO-alkyl, OZ and COOZ.

24. (Original) A compound according to claim 23 wherein

R₂ and R₃ are both H, halogen or

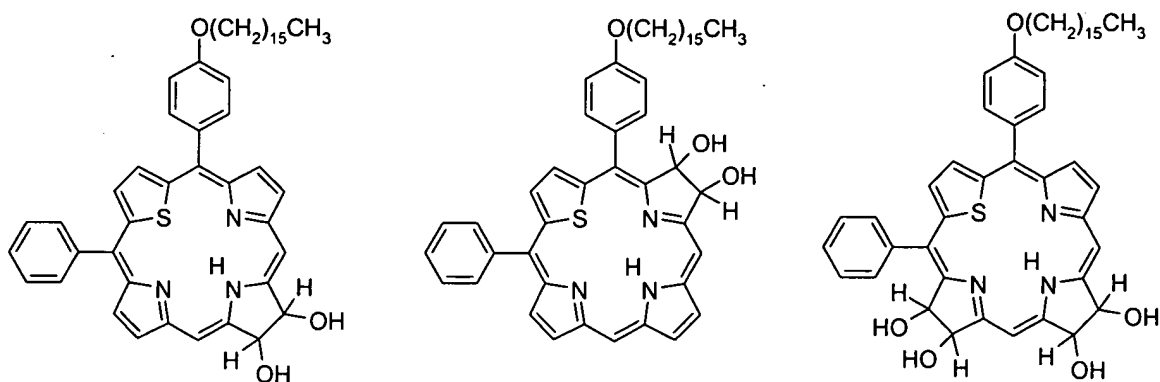


where W is pyridyl;

R₄ is phenyl; and

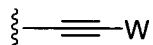
R₁ is alkoxy substituted phenyl.

25. (Original) A compound according to claim 24 which is selected from:



26. (Currently Amended) A compound according to claim 16 ~~or claim 18~~ wherein R_1 and R_3 are the same and are both aryl or heteroaryl, each of which may be optionally substituted by one or more substituents selected from OH, CN, CF_3 , alkyl, alkoxy, haloalkyl, halogen, an isothiocyanate group, a haloacetamide, maleimide, NH_2 , NO_2 , $CONH_2$, haloalkyl, $COOH$, COO -alkyl, OZ and $COOZ$; and

R_2 and R_4 are the same and are both H, halogen or

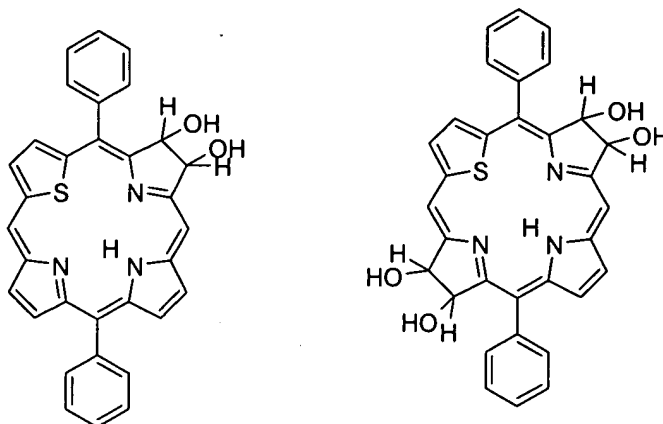


27. (Original) A compound according to claim 26 wherein

R_1 and R_3 are both phenyl; and

R_2 and R_4 are both H.

28. (Original) A compound according to claim 27 which is selected from the following:



29. (Currently Amended) A compound according to ~~any preceding~~ claim 1 wherein M is selected from H, Ni, Pb, V, Pd, Co, Nb, Al, Sn, Zn, Cu, Mg, Ca, In, Ga, Fe, Eu, Lu, Pt, Ru, Mn and Ge.

30. (Currently Amended) A compound according to ~~any preceding~~ claim 1 wherein M is H or Zn.

31. (Currently Amended) A pharmaceutical composition comprising a compound according to ~~any one of claims 1 to 30~~ claim 1 admixed with a pharmaceutically acceptable diluent, excipient or carrier.

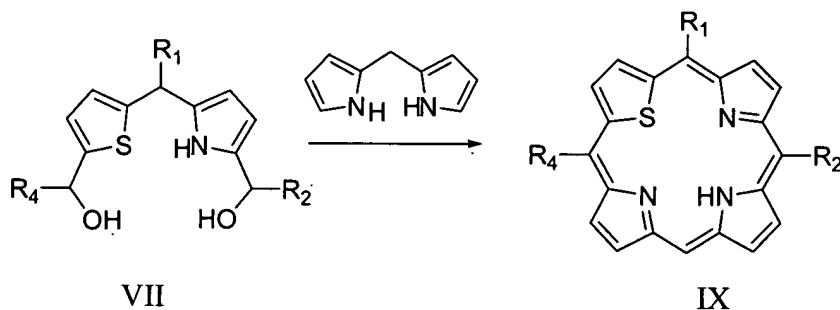
32. (Currently Amended) A conjugate molecule comprising a compound as defined in ~~any one of claims 1 to 30~~ claim 1 and a targeting moiety selected from a recombinant antibody, a Fab fragment, a F(ab')₂ fragment, a single chain Fv, a diabody, a disulfide linked Fv, a single antibody domain and a CDR.

33. (Currently Amended) A conjugate molecule which comprises a polypeptide carrier comprising at least one alpha helix having synthetically attached thereto a plurality of compounds as defined in ~~any one of claims 1 to 30~~ claim 1.

34-38. (Canceled).

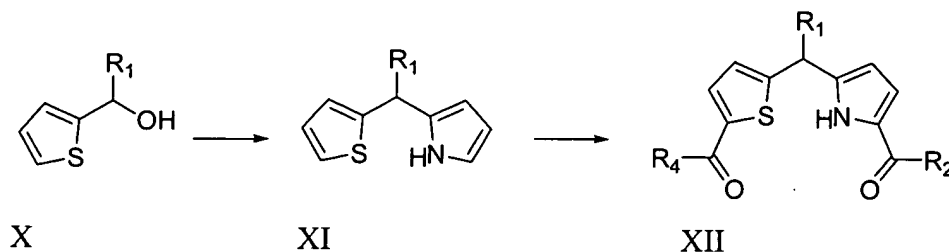
39. (Currently Amended) A method of treating a proliferative disorder, said method comprising administering to a subject a therapeutic amount of a compound according to ~~any one of claims 1 to 30~~ claim 1, or a conjugate according to claim 32 ~~or claim 33~~.

40. (Currently Amended) A process for preparing a compound as defined in claim 1 ~~or claim 2~~, said process comprising reacting a compound of formula VII with a dipyrrole to form a compound of formula IX



where R_1 , R_2 and R_4 are as defined in claim 1.

41. (Original) A process according to claim 40 wherein said compound of formula VII is prepared via intermediates X, XI and XII



Applicant : Gokhan Yahiloglu et al.
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42. (Currently Amended) A process according to claim 40 ~~or claim 41~~ for preparing a compound according to claim 17 ~~or claim 19~~ which further comprises oxidising said compound of formula IX with osmium tetroxide.